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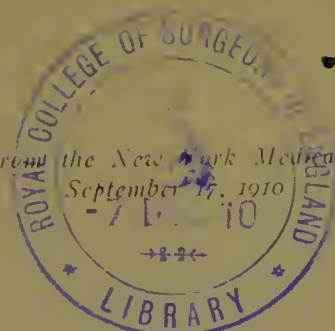
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DUODENAL REGURGITATION DUE TO FATTY
FOODS AND OILS AS A CLINICAL ENTITY.
FAT INTOLERANCE OF GASTRIC ORIGIN.

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Of late years the employment of oils and fatty foods in the local treatment of gastric disorders has received considerable attention. This was mostly due to the experiments of Cowie and Munson on human beings and the view of Pawlow based upon experiments in animals, all agreeing that the influence of oils and fats decreases gastric acidity. To the practical value of these observations, which are important because the excessive acidities and over-secretions make up a bulk of gastric cases that are benefited by their use, may be added certain other facts which have helped to bring their universal adoption about. Among the most prominent of these are the following: In many of the neurotic and even those of a catarrhal condition of the stomach well digested oil is a powerful reconstructor, energizer, and tissue sparer, and by its constitutional effects assists in bringing about a more normal condition of the general body and stomach; the inhibitory action that it has in instances of over-motility and its antispasmodic effects in pylorospasm, also two common forms of stomach disturbance; and the writings of Cohnheim on the benefits that accrue from its use in the treatment of gastric ulcer, and several others of an empirical nature.

Up to this time the cases in which the use of the fatty foods or oils were counterindicated have been

generally classed as those of fat intolerance, and this is represented in poor fat digestion and absorption, and the metabolic type of difficulty to assimilate fats after absorption. Leaving out of consideration such other conditions in which the use of fat would not be advisable (icterus, pancreatic disease, structural disease of the intestinal wall, some cases of diabetes and phthisis) I desire to draw attention to a stomach condition in which clinically the oils or fat foods, such as olive oil, milk cream, butter, and eggs, seem to be indicated, but in which they do harm and perpetuate the condition.

During the past winter I have seen four individuals, all men of middle age, who were definite instances of this, each of whom had been in the hands of competent practitioners without benefit, and each of whom made substantial recovery when the fats had been stopped and they were placed on a fat free diet (skimmed milk, white of eggs, carbohydrates, green vegetables, boiled meats, etc.). The additional reason I wish to draw attention to this is because it has been and will rightfully remain logical to believe that for any stomach condition of a neuritic or functional nature the simple and normal diet of good fresh milk and cream, fresh unsalted butter, soft eggs, and the readily assimilated forms of oil would be wholesome and safe foods to employ, and yet there is a class of cases, small in proportion, in which their employment is a most unwise practice.

Each of my cases occurred in individuals who gave a history of having had no stomach disorder up to the onset of acute symptoms. The subjective symptoms described were those of a sharp pain in the epigastrium radiating to the back which persisted for from several minutes to several hours and

sometimes over one or two days at a time. In each instance these pains were described as most severe, irregular in duration, quite incapacitating the patient for the time being, and then suddenly ceasing at which the individual was as well as ever. There was no distinction in any of them as to when this spasmodic pain would begin or cease, and it was independent of meals or the ingestion of foods of different character or quantities. One of them said that a nausea was present at the time that the pain was severe, but none had vomiting at any time during the illness. Other than the seizures of pain, which came on acutely in the first attack, there was nothing particular in the history of any of them. Their average age was thirty-seven; the average length of time when the histories were taken that the condition had existed was two and a half months; two were in men who may be classed as manual workers and the other two were engaged in office work in responsible positions. One was habitually constipated, the other three not so. All were free from mental strain, worry, anxiety, etc., and all lived regular lives with good eating habits.

The physical examination of each was negative in so far as the abdominal and chest organs were concerned. They were well nourished, and but one had good muscular development. On several occasions I examined them when the gastric pains were severe and no tender areas, definite locality of painful tenderness, spasm of the recti, or other symptoms were noted. Each placed my hand on the region between the ensiform and the umbilicus as the seat of the pain but in none did deep pressure on this area cause any particular distress. There were no reflex tender areas, back or front. Each was placed on a three days' diet for testing the digestive power for all types of foods and in

each the stool examination was negative. The urines were also examined and were negative excepting the individual who had been constipated, in whose urine an excess of indican was noted; in this same person the blood count showed 4,200,000 erythrocytes; hæmoglobin, seventy-nine per cent.; and the morphology of the red cells and the differential count of the leucocytes were negative.

Three of the patients came under observation in one week's time, and in these I made the initial diagnoses of neurotic pylorospasm, pylorospasm with probable excessive acidity and general neurosis, and pylorospasm with moderate general debility and dietetic and occupation constipation. The patients were first given a thorough purging and were placed on a diet composed of milk, fresh cream, well cooked cereals, butter, and soft eggs, the daily amounts of food arranged according to the weight and work of the individual and representing between 3,000 and 3,750 calories a day. Olive or sweet almond oil was advised to be taken before partaking of food in the hope of relieving the pains which I ascribed to pylorospasm, and a bromide and valerian mixture to two, and the same with organic iron added thereto and a night dose of cascara to the constipated and anæmic patient. In a few days I appreciated that the most unsatisfactory of the cases in which benefit from treatment seemed reasonable to expect that I then had under observation were these three, and then I noted the similarity in the symptomatology between them and became cognizant of the fact that changes in their prescriptions seemed to bring about no beneficial results. They were on simple diets which according to the diagnoses should benefit them, and it was only when the bromides were given in large sized doses that this was reported.

and such was only moderate and in principle not in accord with rational medicine, and to employ opiates would have been still worse. Evidently my diagnoses were wrong or my results of therapy were no better than others had received.

It was at this juncture that the first clue to the condition came from the first test meal extracted, which, after an Ewald meal, displayed a 900 c.c. return of almost clear bile stained fluid with considerable floating fat, a rather pronounced rancid fat odor, a small amount of starch constituent, a free hydrochloric acid of 12°, and combined hydrochloric acid of 13°, and a total acidity of 33°, and a few rolls of mucus. The meal having been extracted in the early morning before food had been taken it was evident that the fat was from foods which had been ingested the day before, although no evidences of other delayed or stagnant foods could be noted even on microscopical examination, and from the large amount of return even with the presence of bile I first believed the case to be one of gastrosuccorrhœa. On the same morning the third patient came in doubled over with pain and begged for something to relieve him. It was fifteen hours since he had taken food or drink and, anxious to learn if his was also a case of excessive secretion, I passed a stomach tube into his stomach and to my surprise aspirated therefrom instead of an acid gastric juice 43 c.c. of thick, alkaline fluid consisting mostly of bile and pancreatic secretion, about 4 c.c. of floating fat and marked amounts of fatty acid crystals in the fluid, some large clumps of mucus, but no food particles. After this aspiration, as with the patient who had had a test meal removed just before him, instant relief was alleged.

Continuing the diet, I aspirated the stomach of each of these patients after an Ewald meal, the

empty stomach more than five hours after any food or oil had been taken, and each of them during a paroxysm of pain and during the interval. With the test meals, varying amounts of return were noted, but in each there was a marked increase in the amount of return suggestive of oversecretion. The acidities in each of the four cases varied, not too high in so far as the amounts of acids in 10 c.c. lots were concerned, but when considered in the total amount of acid represented in the large return an oversecretion was evident (this, in my opinion, was due to the irritation of the gastric glandularis from the bile present during gastric digestion). Each of the test meals displayed much larger amounts of bile and pancreatic secretions than can be noted in those rather common instances of duodenal contents admixed with test meals, and which are usually of no definite significance and probably due to the straining incident to the passage of the tube. They all showed a rather low mucus content and no abnormal findings excepting the floating fat from foods that had been taken hours before. Aspiration of the empty stomach in all displayed large collections of neutral or faintly alkaline duodenal secretions which were deeply bile stained and high in pancreatic ferments, and from 1 to 5 c.c. of floating fat. Considerably more mucus than was found in the test meals was also noted, the return being quite viscid. During the paroxysm the stomach contained this regurgitation from the duodenum and fats in marked amounts, while in the interval decidedly less collection was obtained, and in one instance none at all on aspiration of the stomach, but after instilling water into the organ through the tube a bile stained return containing also fat and pancreatic enzymes was obtained.

In the production of this condition it is impor-

Bassler: Duodenal Regurgitation.

tant to recall that Pawlow in his experiments upon dogs with gastric fistula was able to obtain an emulsion which contained bile and pancreatic juice one or two hours after the ingestion of oil. Volhard, following Boldyreff, noted that in the human stomach positive results in the way of obtaining a regurgitated fluid containing trypsin following the taking of an oil could be obtained in sixty per cent. of cases. Upon these observations the Levinsky method and finally the Koziczekowsky method of obtaining specimens of the duodenal secretions from the stomach following the instillations of fats were based, and I may parenthetically state that the latter two methods are decidedly to be preferred in practical medicine for obtaining specimens of duodenal secretions than the two recently advanced mechanical means.

It is therefore plain, since these patients rapidly recovered when a fat free diet was installed without any other forms of treatment, that the fat of foods was responsible for the condition in the first instance, and these continued in the diet I advised and the oils accounted for the perpetuation of the duodenal regurgitation afterward. Certainly when these foods were stopped the condition ceased in a week's time in each case, and the duodenal regurgitation also stopped.

As to how the fats or oils in the stomach bring this condition about is not known, although it is probable that the normal pyloric reflex is interfered with either by there being a diminished secretion of hydrochloric acid which, according to Cannon, activates it by stimulation of the duodenal mucosa, or, as seems more probable, by the oils in some way affecting the mucosa of the pyloric region or the duodenum and causing pyloric relaxation or regurgitation in that way. The pain in each instance was

Bassler: Duodenal Regurgitation.

due to the collecting of duodenal juice in the stomach and to the formation of fatty acids by its effect upon the fats which hung back in the organ. This could be proved not only by the presence of this collection in the stomach at the time the paroxysm was on, but also by the immediate cessation of pain when the stomach contents were ejected or washed out, and finally by their complete cessation when the duodenal regurgitation was not further stimulated by a fatty diet or the oils.

I feel that the condition is a clinical entity which should be recognized.

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With the Author's Compliments.

